Exhibit A

ALLEN D. HERTZ
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December 09, 1997

To: Racal-Datacom Intellectual Property Department

Re: Submission & Request for Release: Disclosure entitled:

"Application of Ultrasonics for Improved Soldering of Printed Circuit Assemblies"

The following disclosure is being submitted along with this request for release to the inventors. We feel the said disclosure does not pertain to Racal-Datacom's primary interest of business: The design and manufacture of modems. The disclosure pertains to a method of improving the assembly process of electronic products, more specifically the apparatus, a reflow oven.

The method would be difficult to enforce as there would not be a footprint remaining on competitors products. The apparatus would have to be developed and licensed to an oven manufacturer as Racal-Datacom is not in the business of making reflow systems.

Based upon the cost of pursing this concept, the timeframe to develop and license the technology, and the general business interest of Racal-Datacom, we are requesting the technology be released to the inventors. If we do not receive written response by 1/15/97, we will assume that Racal-Datacom has agreed with our request to release the rights to the invention to the inventors.

Respectfully yours,

Allen D. Hertz Dennis D. Epp

cc: Joe Valdes
Personnel files: Allen Hertz, Dennis Epp

(Revised) 1/8

RACAL-DATACOM GROUP
PATENT DISCLOSURE FORM

(Note: Additional instructions for completing this form are provided at the end of the form.)

A. Description of Invention and Prior Art

1. **Title.** "Application of Ultrasonics for Improved Soldering of Printed Circuit Assemblies"

2. **Prior Art.**

(a) Describe what has been done before the invention including any known methods or devices for accomplishing the general objective or purpose of the invention and any disadvantages of such methods or devices:

The following are known applications of ultrasonics for assembly of Components to Printed Circuit Boards:

Solder Pots (Solder baths):

US Patent #3,991,933: Methods and apparatus for soldering - The use of a sympathetic mode of vibration by means of low frequency amplitude modulated variations or harmonics and sub-harmonic vbrations imposed on the bath for fluxless soldering.

US Patent #3,762,368: Solder Bath for Flux Free Tinning - A device for containing a heated bath of solder for coating or tinning an object without the use of flux by subjecting the bath and object to ultrasoic waves during tho tinning process.

US Patent # 4,203,531: Ultrasonic soldering bath havingan ultrasonic probe extending into the solder bath - Describes a variation of the solder baths above.

US Patent # 3,934,781: Soldering bath for fluxless ultrasonic soldering - Similar to above using several sonotrdes pass through the base of the chamber.

Use during assembly:

US Patent # 3,966,110: Stabilizer system with ultrasonic soldering - The use of ultrasonic soldering for through hole assembly where the vibratory energy is placed into a body of molten solder. The vibratory energy scrubs the board and leads of oxides, allowing wetting.

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solder is applied to the surface along with ultrasonic energy so that the solder wets the exposed pads.

(b). To the extent not described in 2(a) above, list all closely related publications, products, patents, patent applications or other sources of public knowledge of which you are aware that, prior to the date of the invention, used or taught the same or similar techniques, approaches, or methods to those taught by the invention (Provide copies if available):

3. **Abstract of Invention and Benefits.** Describe concisely the invention, the purpose and objectives of the invention and the advantages of the invention over the above described prior art:

The invention is the use of Ultrasonic energy applied to the subject assembly during the liquidous phase of reflow. The ultrasonic energy removes oxides on the subject surfaces, and increases the number of random molecular collisions thus increasing the rate of wetting. The end result is an improved solder joint.

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4. Detailed Description of Invention. Describe the construction and operation of the invention using one or more of the Patent Disclosure Data Sheets provided at the end of this form. Explain in as much detail as necessary, exactly how the invention works. Go through it step-by-step, or piece by piece. Also, if available, attach any relevant notebook pages or other documentation describing the invention.

Ultrasonic energy can be tranmitted onto a subject electronic circuit being assembled via acoustical transfer, mechanical transfer or through a liquidous medium (wave soldering).The frequency can be either fixed or varied, where the varied frequencies would eliminate potential damage to components from natural frequencies or harmonics of such.

The assembly would be placed onto a conveyor.

The assembly is transfered to the point where the solder changes state from a solid to a liquid.

The assembly would be subjected to the ultrasonic energy during the liquidous stage of assembling the product.

The ultrasonic energy removes the oxides, increases wetting, and decreases any frictional forces (changes from static to dynamic friction) allowing the components to self center.

The assembly is cooled where the solder solidifies completing the assembly of the circuit to the printed circuit board.

B. How the invention fits into RDG business needs

Check one of the following possibilities and identify any products:

1. ____ There is an approved plan to incorporate the invention into an approved or existing RDG product. The product is:

2. ____ There is an existing proposal to incorporate the invention into an approved or existing RDG product. The product is:

3. ____ There appears to be a strong chance that the invention may be used in a future RDG product. The product will be:

4. ____ There appears to be some chance that the invention may be used in a future RDG product. The product will be:

5. ____ An approved or current RDG product exists that could use the invention, but there is no proposal or approved plan to include the invention in such product. The reason for this is:

6. ____ There is no meaningful chance that the invention will be used in a current or future RDG product, but it may be used in other companies' datacom products. Such products would be:

7. __X__ Other: The invention may be implemented into the reflow ovens. The implimentation may require vendor approval to modify the equipment.

Provide any supporting information you have for the above conclusion:

The invention is not directly related to RACAL-DATACOM's direct business focus and has limited value. The value of the invention is within the ability to obtain a patent then license the rights to an oven manufacturer. Based upon this, we would recommend that Racal-Datacom release the invention to the inventors.

C. Scope of Anticipated Patent Protection

Check below the scope of impact that you anticipate the invention may have:

1. ____ Covers an entire new product or business opportunity, with no competitive alternatives.

2. ____ Covers an entire new product or business opportunity, with competitive alternatives which have less functionality or higher cost.

3. ____ An enhancement to an existing product with no known alternatives for such enhancement.

4. ____ An enhancement to an existing product with known alternatives to such enhancement that are not technically as good.

5. ____ An enhancement for an existing product with known alternatives to such enhancement that technically are as good, but that cost more.

6. ____ There are known alternatives to the invention with little or no additional disadvantage.

7. _X__ Unknown. The nature of the invention is not currently in the scope of Racal-Datacom's primary business focus.

Provide any supporting information for the above conclusion, including, to the extent not already covered, a description of any known alternatives and their respective disadvantages:

D. Conception and Reduction to Practice of Invention

1. Earliest date and place invention was conceived (brief outline of circumstances): Conception: Saturday, November 08, 1997, in the manufacturing area, discussing the reasons why solder wets and Arrhenius Theories.

2. (a) Date of first sketch, drawing or photo, if any: None
   (b) Where filed:

3. (a) Date of first written description, if any: Files held by the inventors
   (b) Where filed:

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4. Date and place of completion of first model or full size device, if made: None to date

5. Number and/or name of project under which the invention was made, if any: None

6. Identify notebook entries (vol. and page numbers), reports, drawings, etc., which show or describe invention, if any: None

7. Persons to whom invention has been disclosed (furnish dates): None

E. Statutory Bar Considerations

1. To the extent applicable and known, provide the date when a product incorporating the invention will be or has been:

(a) first demonstrated to individuals outside of RDG (e.g., beta site tests): None

(b) first offered for sale (e.g., product announcement): None

(c) first sold: None

2. To the extent applicable and known, provide the date when the invention will be or has been:

(a) discussed with someone outside of RDG or its consultants: None

(b) published in an article: None

F. Inventor information. Typed or printed named of Submitter(s): 6/8

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PATENT DISCLOSURE DATA SHEET

Describe the construction and operation of the invention, with sketches if necessary, using one or more of these patent disclosure data sheets.

The invention is the use of Ultrasonic energy applied to the subject assembly during the liquidous phase of reflow. The ultrasonic energy removes oxides on the subject surfaces, and increases the number of random molecular collisions thus increasing the rate of wetting. The end result is an improved solder joint.

Signature of Submitter(s):

_____ Date 12/9/97

_____ Date 12/9/97

_____ Date _____

Read and Understood by Witnesses:

_____ Date _____

_____ Date _____